ELMO

COLOR CCD TV CAMERA

TND4104X

DOME CAMERA

INSTRUCTION MANUAL

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION

- Do not use any power supply other than specified.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

* The CAUTION label is attached on the bottom of camera.

INFORMATION

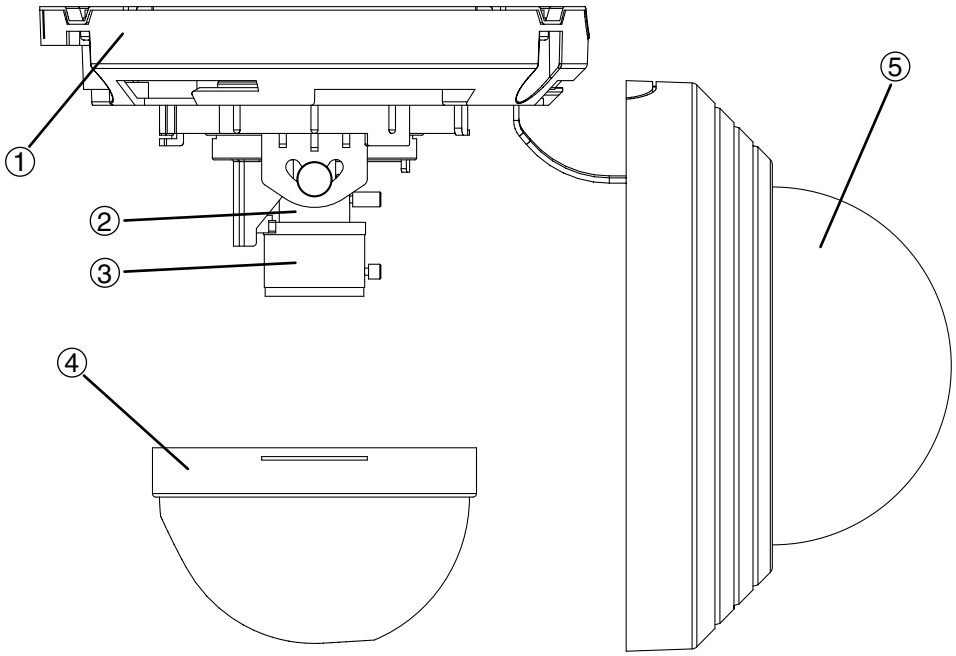
This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

USER-INSTALLER CAUTION: Your authority to operate this FCC verified equipment could be voided if you make changes or modifications not expressly approved by the party responsible for compliance to Part of the FCC Rules.

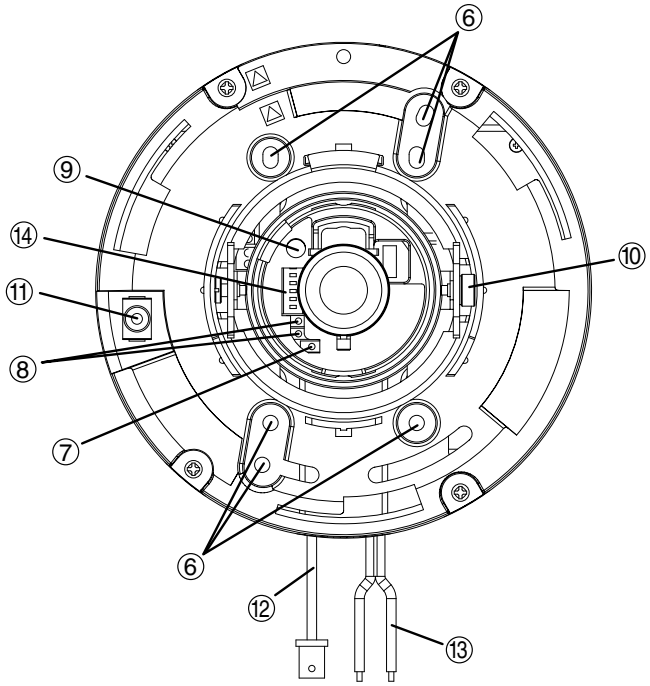
IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings, install in accordance with the manufacturer's instructions.
8. Do not install near heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Only use attachment/accessories specified by the manufacturer.
10. Unplug this apparatus during lighting storms or when unused for long periods of time.
11. Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have been fallen onto the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Name and Function of Each part

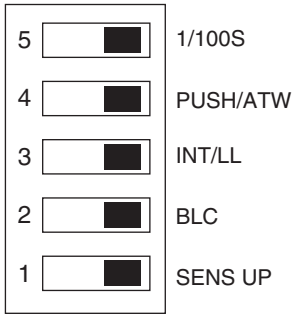


No.	Name	Function
①	Main body	The main body of the camera section.
②	Zoom ring	For adjusting the image size.
③	Focus ring	For adjusting the focus.
⑤	Cover lens	Protective cover for the lens.
⑥	Dome cover main body	Protective cover for the main body.



No.	Name	Function
⑥	Screw hole for mounting main body	For fixing the main body with screws.
⑦	AW PUSH	Used when the white balance is in the PUSH mode.
⑧	DOWN/UP	For setting the vertical sync. phase.
⑨	ALC adjustment volume	For adjusting the brightness of the image.
⑩	Tilt lock screw	For locking the tilt after adjusting the image up/down direction.
⑪	Monitor terminal	Connect this to output images. When adjusting the image shooting direction, field angle or focus (in wiring work, for example), connect a monitor TV, etc.
⑫	BNC cable	Image output terminal to be connected to the image input terminal such as monitor TV.
⑬	AC/DC power cord	Connect this to the AC24V 60Hz or DC12V power supply.
⑭	Selector switch	Refer to P4.[Selector Switch (Details)]

⑭ Selector switch (Details)



(This figure shows the setting before shipment from our factory.)

1.SENS UP switch

To set the max. value (upper limit value) of the operating gain in the auto gain control circuit, set this switch to ON position. In case the back lighting is too dark and the camera sensitivity is insufficient, set this switch to ON position.

2. BLC (Back Light Control) switch

In case the back lighting is too bright to shoot the main object clearly, set this switch to ON position.

3. INT/LL switch(Set at LL position from the factory)

a. INT. (internal) control switch

When the internal synchronization is used, set the switch to the INT side.

b. L.L. (Line-lock) control switch

Matching the vertical synchronization with the power frequency is called the line-lock.

When two or more cameras are connected to a monitor TV through a video switcher, the vertical sync. phase can be locked with the power frequency, and a stable vertical sync. is obtained without being disturbed at the time of switching. Line-Lock is operative only when the AC24V 60Hz power supply is connected.

Use Down/up Buttons to adjust the vertical sync. phase.

4. PUSH/ATW switch

This is the switch to select the white balance PUSH/ATW.

PUSH: When the lighting from the source is constant, it is possible to fix the AW setting.

Place something white (paper, etc.) in front of the lens in a way that the whole screen may be covered, then push the AW PUSH switch. At this moment the setting is saved and retained even after the power is turned OFF.

ATW: The camera automatically adjusts the white balance as it continuously measures the color temperature of the lighting source.

5. 1/100s

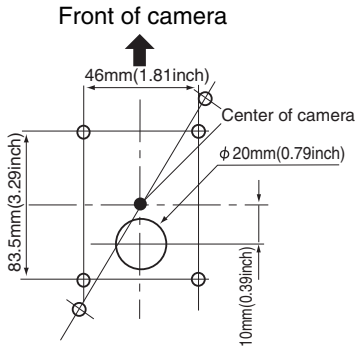
When this switch is turned ON, the shutter speed is set to 1/100 second. It is effective in reducing the light intensity.

Caution:

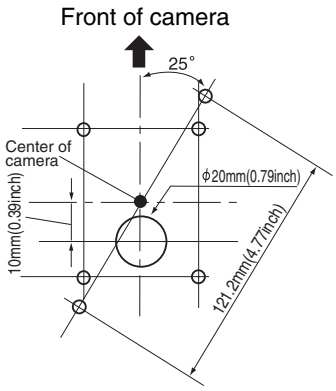
When this switch is turned ON, AES does not operate.

How to Install

1. Make holes in the mounting surface. (Fig. 1)(Fig. 2)



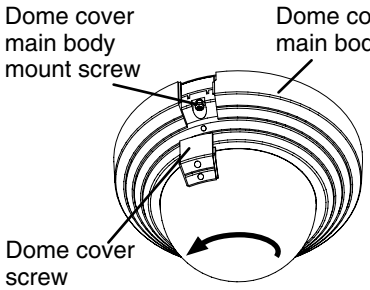
Ceiling/wall/box (Fig. 1)



Gang box (Fig. 2)

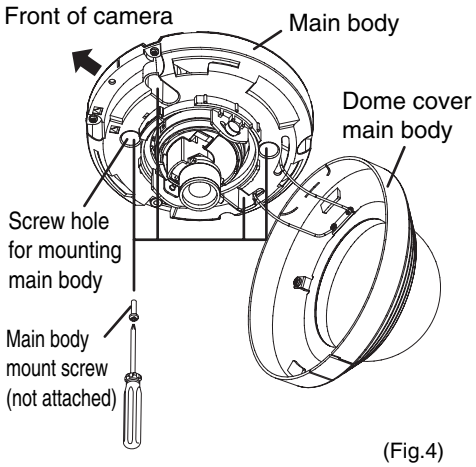
2. Unscrew the dome cover screw and dome cover main body mount screw (Fig. 3).
   ※ Be careful not to drop any of the dome cover screw and dome cover main body mount screw.

3. Remove the dome cover main body by turning it counterclockwise (arrow direction) (Fig. 3).



(Fig.3)

4. Fasten the main body to the ceiling/wall surface/box with a main body mount screw (Figs. 4).
   ※ Make sure that it is fixed firmly.
   ※ Make sure of the position of the front of the camera.



(Fig.4)

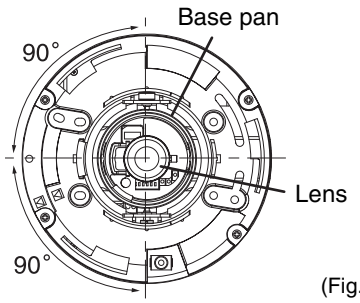
Warning

Weight of the main body and mounting metal piece is 650 g. Make sure that the ceiling or wall is strong enough to support the weight of the main body and mounting metal piece altogether.If not strong enough, the device may drop and injure the personnel around.

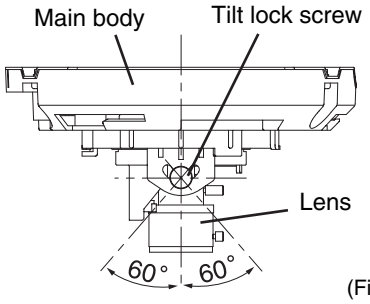
Caution

Please do not hold a part of the lens, when adjusting the image direction. It may cause a breakdown of the lens.

5. While watching the monitor, adjust the image direction.
   · Right/left direction (Fig.5)
   Rotate the base pan to right or left, and adjust the right/left direction.
   · Up/down direction (Fig.6)
   Loosen the tilt lock screw, and adjust up/down direction.
   After setting the up/down direction, fasten the tilt lock screw.
   ※ Be careful not to drop the tilt lock screw.
   ※ Manually fasten the tilt lock screw. If fastened with pliers or the like, the tilt lock screw may be broken.

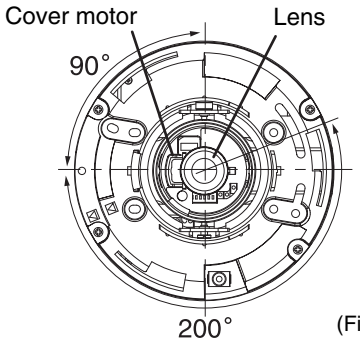


(Fig.5)



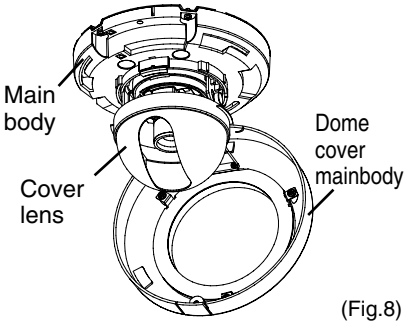
(Fig.6)

6. Correct the tilting of the image (Fig. 7).
※ Be sure to hold the cover motor.



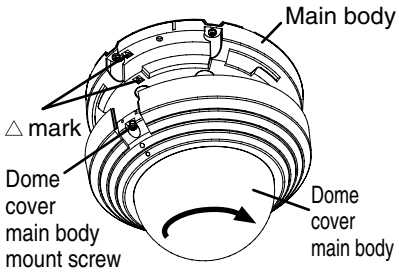
(Fig.7)

7. Install the cover lens (Fig. 8).



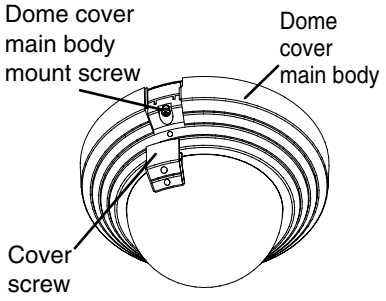
(Fig.8)

8. Mount the dome cover main body by matching the dome cover main body mount screw with the △ mark on the main body and turning it clockwise (arrow direction) (Fig. 9).
※ If the mount screw does not match with the △ mark, the dome cover main body cannot be installed.



(Fig.9)

9. Fasten the dome cover main body mount screw, then cover screw (Fig. 10).



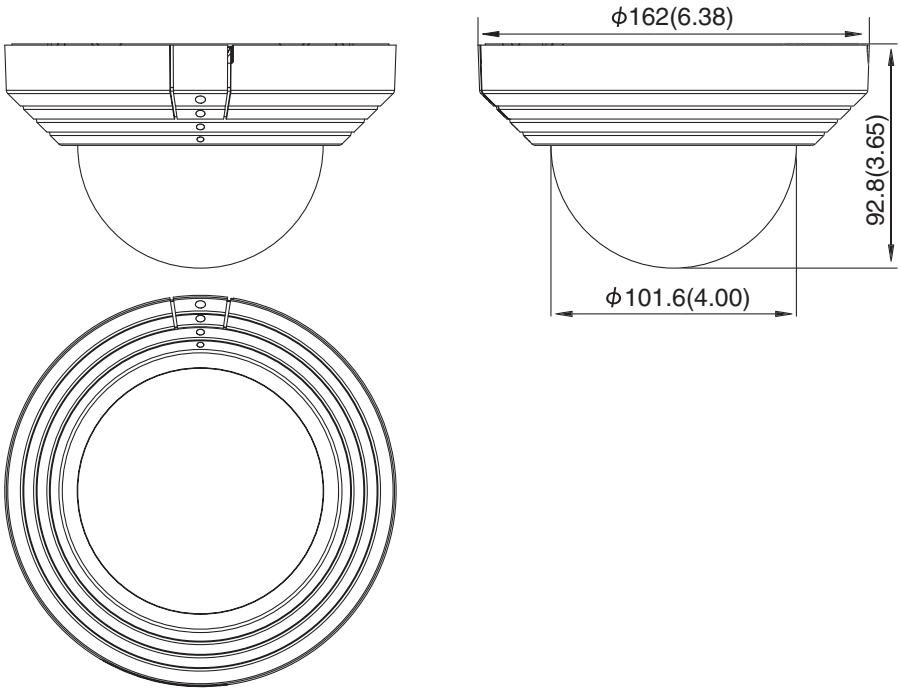
(Fig.10)

When any failure is suspected

Symptoms	Check here.
Image is not displayed.	○ Are cables connected correctly? ○ Are the power plugs of peripheral units inserted correctly into the receptacles?
Color is not correct.	○ Is the video monitor adjusted correctly?
Image is disarrayed.	○ Is any connector of this machine or video monitor loose or contacted poorly?

Appearance

All dimensions in mm(inch)



Specifications

Model	TND4104X
Power source	AC24V(AC15V-27V) 60Hz ± 0.5Hz or DC12V(DC11V-35V)
Power consumption	AC : Approx.2.5W or DC : Approx.2.8W
Image pick-up device	1/3" color interline-transfer CCD
Effective picture element	768(H)X494(V)
Scanning area	4.88mm(H)X3.66mm(V)
Scanning system	2:1interlaced
Scanning frequency	LL : 15.75kHz (H), 60Hz (V) INT : 15.734kHz (H), 59.94Hz (V)
Sync.system	AC : Line-lock/Internal (switchable) DC : Internal
Resolution	480TV lines(H) 350TV lines(V)
S/N ratio	50dB
Standard illumination	100lx (F1.6 under incandescent lamp)
Lowest illumination	0.6lx (F1.6 under incandescent lamp)
White balance	ATW/PUSH (switchable)
AGC	Built-in (SENS UP switchable)
Backlight control (BLC)	Provided (switchable)
Power	Power cable (Non-plug)
VIDEO OUT terminal	BNC cable output VBS 1.0V(p-p) 75Ω
Lens	Varifocal lens F1.6 f=4~9mm
Angle of view	Horizontal 31.6° (TELE)~71.0° (WIDE) Vertical 23.6° (TELE)~51.8° (WIDE)
Dimensions	Diameter : 162mm(6.38") Height : 92.8mm(3.65")
Weight	Approx. 650g(1.43lbs)
Ambient temperature	-10℃~50℃(14℉~122℉)
Ambient humidity	30%~90%
Accessory	Instruction manual, Registration certification card for monitoring camera, 2P Terminal block

ELMO and ELMO are registered trademarks of ELMO COMPANY, LIMITED.

ELMO® ELMO CO., LTD.
6-14, Meizen-cho, Mizuho-ku,
Nagoya, 467-8567 Japan
E-mail : foreign-div@elmo.co.jp

OVERSEAS SUBSIDIARY COMPANIES

ELMO Mfg. Corp.
1478 Old Country Road,
Plainview, NY 11803-5034
U.S.A.
Tel. 516-501-1400
Fax. 516-501-0429
E-mail:elmo@elmousa.com
Web:http://www.elmousa.com/

ELMO Canada Mfg. Corp.
44 West Drive, Brampton,
Ontario, L6T 3T6,
Canada
Tel. 905-453-7880
Fax. 905-453-2391
E-mail:info@elmocanada.com
Web:http://www.elmocanada.com/

ELMO (Europe) G.m.b.H.
Neanderstr. 18
40233 Düsseldorf,
Germany
Tel. 0211-376051-53
Fax. 0211-376630
E-mail:elmoeurope@AOL.com
Web:http://www.elmo.de/

6X1NSJA02

Printed on recycled paper
Printed in CHINA